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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/831,926	05/15/2001	Mikio Inoue	1182-01	2193

35811 7590 05/23/2003

IP DEPARTMENT OF PIPER RUDNICK LLP  
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[REDACTED] EXAMINER

COLE, ELIZABETH M

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER  
1771

DATE MAILED: 05/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary***-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --***Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 10 March 2003.

2a) This action is **FINAL**.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 15, 16 and 19-34 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 15, 16 and 19-34 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are. a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner  
If approved, corrected drawings are required in reply to this Office action

12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)      4)  Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_

2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)      5)  Notice of Informal Patent Application (PTO-152)

3)  Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_      6)  Other \_\_\_\_\_

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 15-16, 19-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 56-093265 in view of JP 8-00897.

JP 56-093265 discloses a porous sheet comprising a plurality of expanded graphite particles and a fluoro resin, (i.e., a water repellant). JP 56-093265 differs from the claimed invention because it does not teach incorporating inorganic fibers such as carbon fibers into the porous sheet material.

JP 8-00897 discloses that incorporating short carbon fibers into a fuel cell body comprising a water repellant resin allows the fuel cell to be made thin while enhancing the strength of the material. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated short carbon fibers into the fuel cell of JP 56-093265 in order to enhance the overall strength of the material. With regard to the fiber length, it would have been obvious to one of ordinary skill in the art to have selected the proper length of fiber through the process of routine experimentation in order to arrive at a product having the desired degree of fiber entanglement and overall strength. With regard to the limitation that the fibers form indentations in the expanded graphite, since the specification teaches at page 5 that expanded graphite is highly deformable and that any pressure results in the deformation of the graphite, presumably the sheet of JP 56-093265 would inherently possess this property. With regard to

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the thickness, weight and electric resistance, it would have obvious to have optimized the size and performance of the sheet of JP 56-093265 by controlling the amounts of the components used.

3. Applicant's arguments filed 3/10/03 have been fully considered but they are not persuasive. Applicant argues that the two references teach away from each other because JP 56-093265 teaches not using a binder while the JP '897 teaches employing a water repellent resin which would necessarily have binder properties. However, this argument is not persuasive because JP 56-093265 also teaches the use of a fluoro-resin binder. JP '897 teaches employing the water repellent resin, ( which applicant equates to a binder), in the diffusion layer and incorporating the carbon fibers into the fuel cell body by applying the short carbon fibers to the catalytic layer. JP 56-093265 teaches not employing a binder in the diffusion layer, but does teach employing a fluoro resin, (which would equate to a binder), in the catalyst layer. Therefore, there is nothing in the teaching of either reference which would teach against one of ordinary skill in the art incorporating the short carbon fibers of 897 into the fuel cell of JP 56-093265, since the teaching that the carbon fibers enhanced the strength of the fuel cell while not adding to the thickness would be equally pertinent to the fuel cell of JP 56-093265. The fact that one employs a water repellent resin in the diffusion layer and one employs a water repellent resin in the catalytic layer does not mean that the teaching that incorporating short carbon fibers into the fuel cell is advantageous would be incompatible with the other reference. Further, since JP 56-093265

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employs a fluoro resin in the catalytic layer and JP '897 teaches applying the fibers to the catalytic layer, the fluoro resin of JP 56-093265 would function to adhere the fibers to the catalytic layer.

4. The Declaration under 37 CFR 1.132 filed 3/10/03 is insufficient to overcome the rejection of claims 15-16, 19-34 based upon JP 56-093265 in view of JP 8-00897 as set forth in the last Office action because: See paragraph 4 above.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

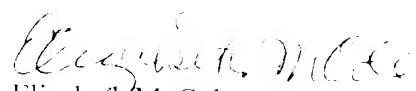
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth M. Cole whose telephone number is (703) 308-0037. The examiner may be reached between 6:30 AM and 5:00 PM Monday through Thursday.

Mr. Terrel Morris, the examiner's supervisor, may be reached at (703) 308-2414.

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Inquiries of a general nature may be directed to the Group Receptionist whose telephone number is (703) 308-0661.

The fax number for official faxes is (703) 872-9310. The fax number for official after final faxes is (703) 872-9311. The fax number for unofficial faxes is (703) 305-5436.



Elizabeth M. Cole

Primary Examiner

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e.m.c

May 20, 2003